



BOROUGH OF WEST HARTLEPOOL.

ANNUAL REPORTS

OF THE

MEDICAL OFFICER OF HEALTH

AND THE

SANITARY INSPECTOR

FOR

1898.

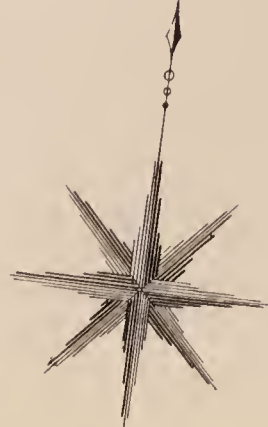


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INFECTIOUS DISEASES IN WEST HARTLEPOOL,
1898.
POPULATION, 58500.



REFERENCES.

- SCARLET FEVER CASES
- TYPHOID
- DIPHTHERIA
- CROUP (MEMBRANOUS)
- SMALL-POX
- TYPHUS

NEW STREETS ARE SHOWN IN RED

Borough of West Hartlepool
STREET MAP.

Published by order of the Council,

J.W. BROWN, C.E., F.G.S., BOROUGH ENGINEER & SURVEYOR.

SCALE
0 100 200 300 400 500 Feet

HEALTH COMMITTEE.

ALDERMAN GRAINGER, CHAIRMAN.

ALDERMAN CLARKSON.

„ FURNESS.

„ RICKINSON.

COUNCILLOR BIRKS.

„ DYER.

„ EVERTON.

„ JOHNSON.

„ KIRTLEY.

„ LOAN.

„ LOHDEN.

THE MAYOR IS EX-OFFICIO A MEMBER OF ALL COMMITTEES.

S. GOURLEY, M.D., F.R.C.S., Edin.,

Medical Officer of Health.

T. G. AINSLEY, M.D.,

Deputy Medical Officer of Health.

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BOROUGH OF WEST HARTLEPOOL.

MEDICAL OFFICER'S REPORT,

FOR YEAR ENDED DECEMBER 31st, 1898.

TO THE CHAIRMAN AND MEMBERS OF THE
HEALTH COMMITTEE.

GENTLEMEN,

I beg to lay before you a Report on the Health of the Borough for the year 1898. It gives me great pleasure to have to write the Sanitary Record for a period that has been the most progressive in every sense of the word in the town's history.

We have had a year of unprecedented commercial prosperity. The number of inhabited houses has increased by 634, the population has been augmented by over 3000 persons, and the rateable value has risen from £195,681 to £206,811 15s. 0d.

The death-rate is a point higher than that of the previous year, which is altogether accounted for by a serious outbreak of diarrhoea among children during the summer months. A mortality of 14·81 in an industrial community, and in a town of almost 60,000 people, situated on the North East Coast, and built on a subsoil of clay, cannot be considered otherwise than satisfactory. To suggest reasons for the healthfulness of the Borough will not be out of place. These may be altogether ascribed to the fact that West Hartlepool is a modern town. To begin with, we have none of the rookeries, alleys, and slums, peculiar to old towns and ancient cities. Our dwellings are built on what a few years ago was virgin soil, and although the ground is being polluted by open privies, and "manuring" our back-streets by the nightly operations of scavengers, yet this has not been continued for years, decades and even centuries as in the case of almost all ancient boroughs.

Another reason for our low death rate, is the extent of ground over which the town has spread. Other things being equal, the greater the density of population the higher the death rate, and consequently the outer less condensed, newer and more open districts have a lower death rate than the central or older ones, where there is a greater aggregation of people.

The opening of the Burn Valley Gardens is to be noted with satisfaction. It is also gratifying to know that the Jubilee Fund provides for further open spaces. The urgent needs of the town are the completion of the New Drainage Scheme, and the abolition of what has been termed a sanitary anachronism, namely the open privies, which have the unanimous condemnation of sanitarians. With the completion of the former, and the abolition of the latter, I look forward to seeing West Hartlepool rank, not only as the healthiest town in the County of Durham, but surpassed by few in the country.

I remain, Gentlemen,

Your obedient Servant,

p.p S. GOURLEY, M.D.,

Medical Officer of Health,

T. G. AINSLEY, M.D.

GEOLOGY.

The formation of the ground on which a town is built has a marked effect on the health of the community, and some observations upon the geological features of West Hartlepool may not be without interest.

West Hartlepool is built on the southern border of the strata of Magnesian Limestone, which extend as far as Ferryhill on the West, Tynemouth on the North; the deeper layers dip under the North Sea to the East, but on the South of a line drawn South-west from the Longscar Rock, cutting Stranton Grange, the Limestone terminates abruptly, and Red Sandstone is found instead. The Magnesian Limestone is several hundred feet deep, below which are the Coal Measures.

Covering the Magnesian Limestone is a layer of Boulder Clay of varying thickness. In some places it is only a few feet, and in others several hundred feet in depth. There is very little clay at the upper portion of Church Street, the position of Christ Church, Tower Street, and Cleveland Road. At the Water Works and again at High Throston, the clay is entirely absent.

West of Stockton Street, between Stranton and Park Road, Gravel beds appear near the surface. These beds were higher than the surrounding land, and some years ago were levelled, the gravel being spread as far as York Road. These gravel beds are again found at the higher ground to the East of the houses of Mr. Christopher and Mr. John Brown, the tracts running in a South-easterly direction from High Throston to Catcote. The natural formation of the ground is altered to a great extent by artificial deposits of various kinds. This "made-ground" is principally composed of sand and gravel, the ballast of ships. Victoria Terrace and the streets to the East of Lynn Street are all "made-ground," the depth of the gravel in some places being eight to ten feet. Again to the South of Burbank Street, as far as Harrison and Singleton's Saw Mills, the ground is made of several feet of gravel tips. Beyond this point to the South, the artificial deposits are principally slag and cinders, upon which superficial foundation Longhill is built.

The foundation of Seaton is red Sandstone.

What is known as "the tips" in the North Ward and the Cemetery are of course formed from Clay excavated from the docks.

Occasionally “pot-holes” or clay pits are found as at the position of “Carter’s pond” at the lower end of Thornton Street, “Richardson’s pond” at the upper end of Dalton Street and “Johnson’s pond” in Clifton Avenue.

There is according to some authorities, running from Longscar through the Docks to the North of Dyke House and the Workhouse a belt of Boulder Clay, twenty to thirty feet wide, and of great but uncertain depth. This clay runs almost parallel to high-water mark, and acts as a buttress between the land and the sea. It is of firm consistence and great tenacity, and has large pebble stones throughout its substance, arranged in the promiscuous manner of the plums in a pudding.

It is therefore seen that the foundations vary in the different Wards. Another year it would be useful to have a coloured map of the town, shewing the subsoil of the various districts.

The gravel beds and the made ground of sand and gravel form porous sites, and if the drainage effectually prevents any collection of water on the subjacent clay, the foundations will be dry and healthy. Boulder Clay, especially where of great depth and consequently impervious to water, is liable to render the foundations of houses damp. The superficial layers of clay take up a certain proportion of water which being unable to drain away through the lower and impervious layers, is given off by evaporation, rendering the climate moister than the rain-fall, and colder than our Geographical position would indicate.

Houses on Limestone rock are built on essentially healthy sites, but here great care must be taken that there are no drain imperfections, nor ground contamination, or the danger of pollution of our water supply becomes real.

METEOROLOGY.

Atmospheric changes have an important bearing on the health of a district. Despite the old adage that a “green Christmas makes a full church-yard,” it may be broadly stated that the greater the extremes of heat in summer and cold in winter, the more unfavourable are the tables of sickness and mortality. The effects of any rise or fall of temperature are perniciously influenced by the amount of moisture in the air.

FEVERS CHART.

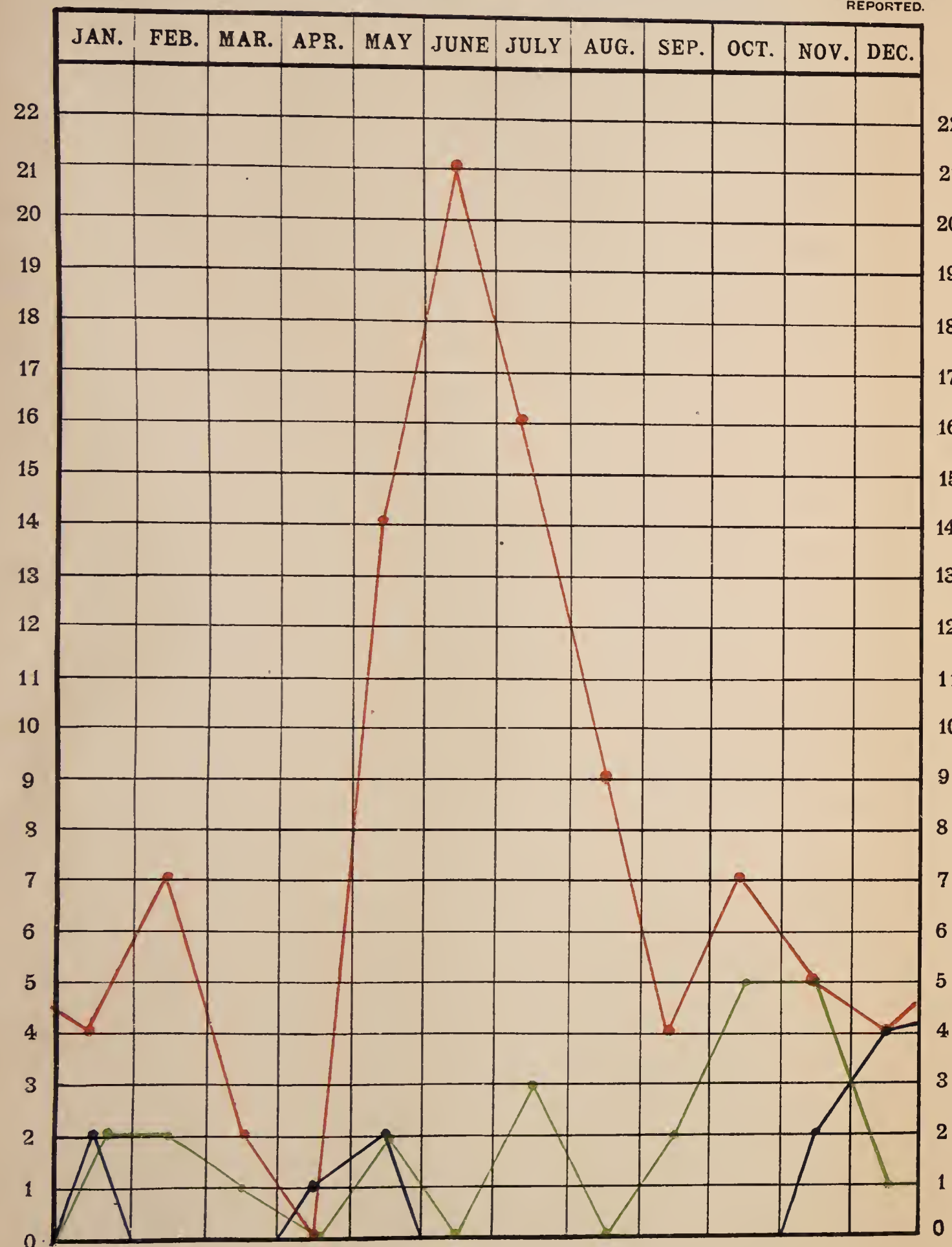
1898.

SCARLET FEVER. TYPHOID FEVER.

DIPHTHERIA AND MEMBRANOUS CROUP.

NUMBER OF CASES REPORTED.

NUMBER OF CASES REPORTED.



METEOROLOGICAL CHART.

1898.

Observations taken at 10 a.m., under the direction of Mr. H. Lamb, Lynn Street, West Hartlepool.

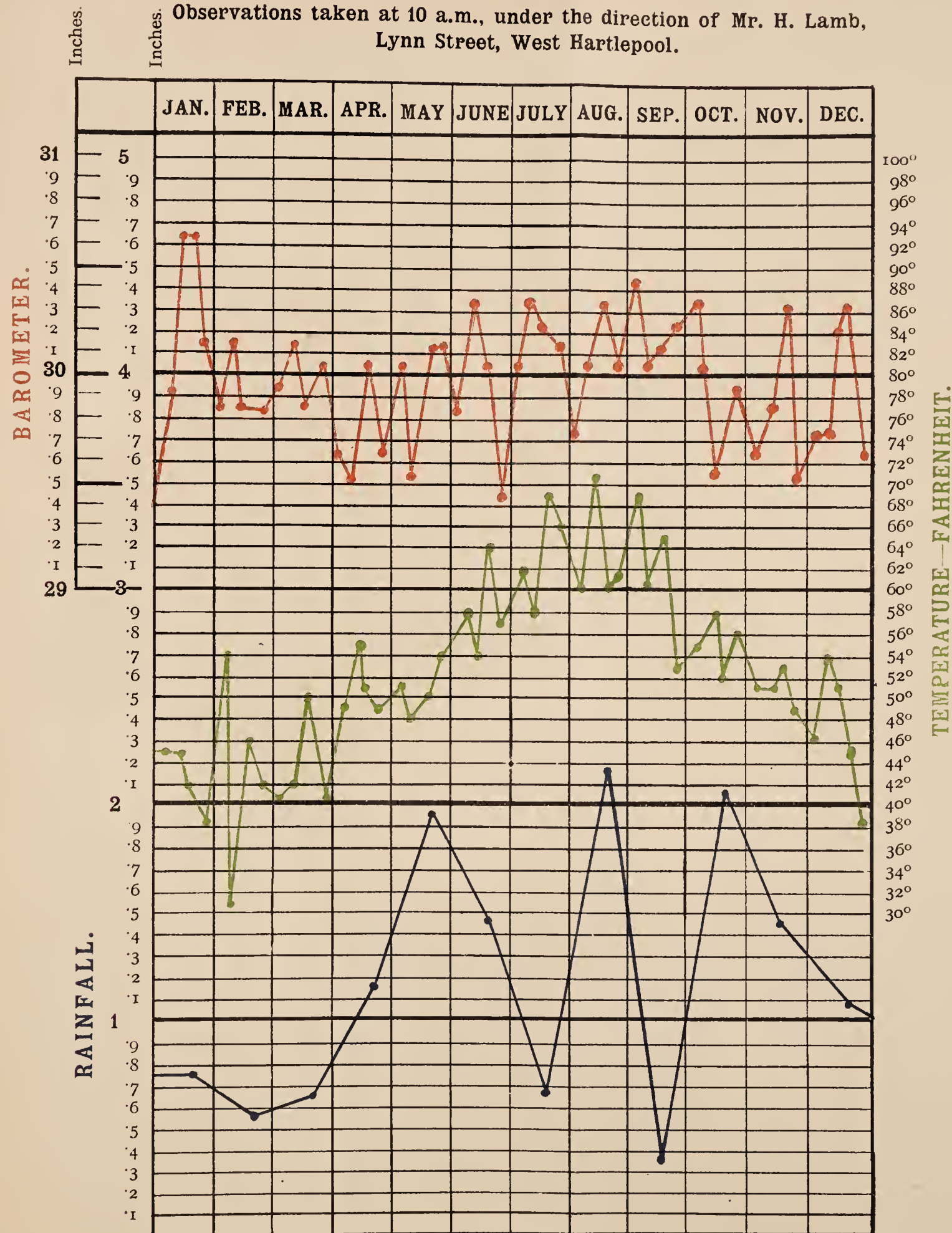
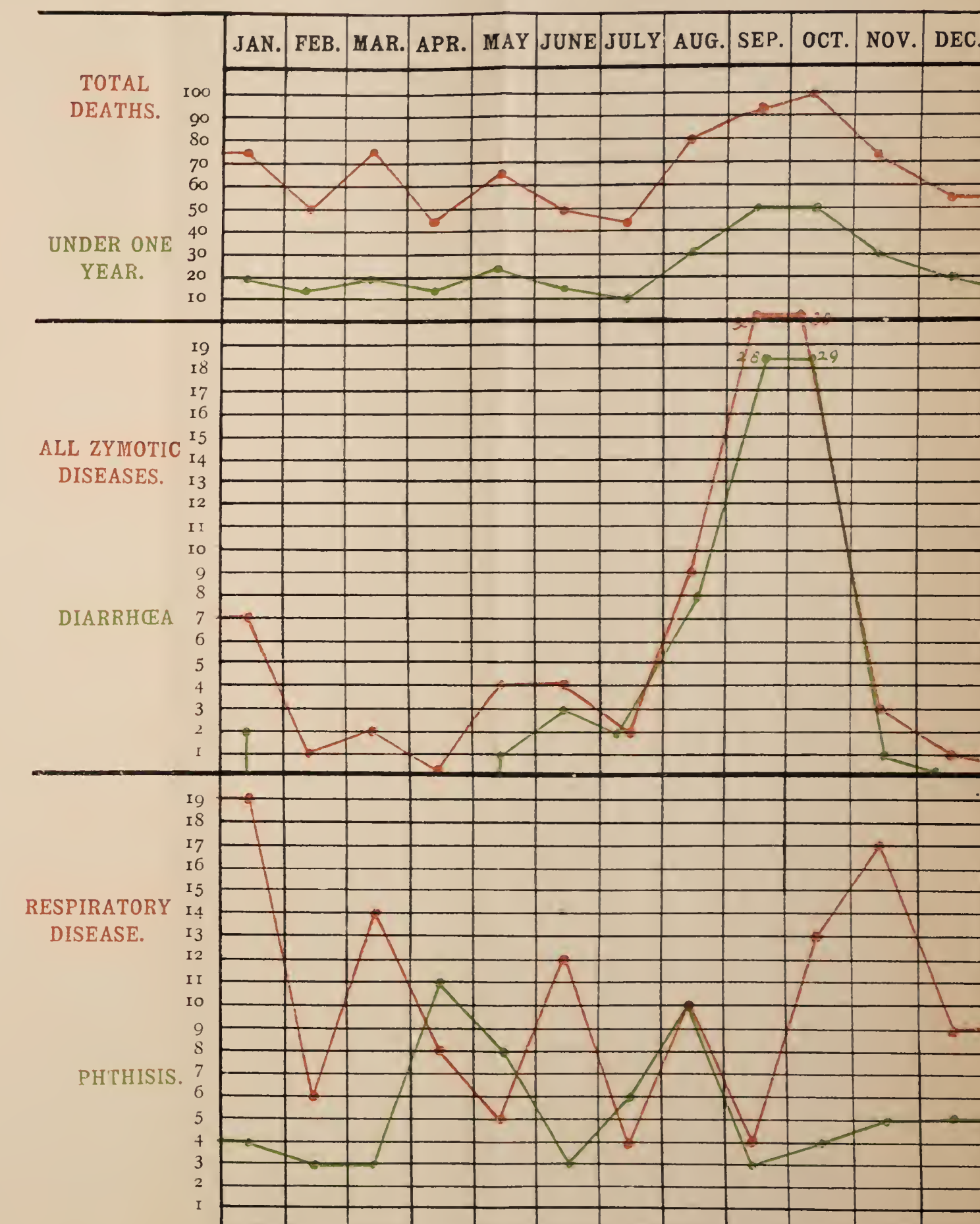


Chart Showing Causes of Death.

1898.



Outbreaks of illness illustrating this statement are of frequent occurrence—a typical example shewing the effects of cold and damp occurred in the spring of 1894. There had been a winter of unusual severity, but no increase in sickness so long as frost continued and the air was dry. When a thaw took place and moisture permeated the atmosphere, an epidemic of disease of almost unprecedented character took place. With regard to the summer incidence, the year 1898 furnishes proof of the statement. Reference to the Meteorological Chart will show that although there was a gradual rise of temperature there was no increase in sickness until the thunderstorm of July 23rd. The heat and moisture then by setting up putrefactive and other changes gave rise to an outbreak of diarrhoea more severe than we have had for several years past.

The year 1897 had no extremes of temperature and nothing remarkable in the rain-fall; sickness was consequently below the average and the death rate low.

The early months of 1898 were temperate. There was no snow and little rain or sleet, and with the exception of a storm from 22nd to 28th March, the weather was all that could be desired. Influenza was present, but neither the number of cases nor the mortality was equal to previous years. The death rate was 14·19 for the quarter, which is highly satisfactory for the first three months of the year. The health of the borough was no doubt favourably affected by the absence of severe cold, and, as little rain fell, less moisture in the air than usual.

The spring quarter was even more favourable. The death rate was 11·22, and no preventable disease could be said to be prevalent.

The summer was long and fine. Little rain fell, with the exception of thunder-showers. There was a severe one on July 23rd, and another on August 5th, when 0·83 inches of rain fell, in rather over two hours. There was also a heavy down-pour on the afternoon of August 3rd (Barnum's Show day). With these exceptions there was little wet until October. These conditions were conducive to the outbreak of diarrhoea and

kindred diseases. These complaints prevailed amongst children with a greater mortality than any year since 1893, when the weather conditions were similar. The death rate from all causes for the quarter was 15·41.

Rain fell steadily in October, and as the ground cooled towards the end of the month, the epidemic of diarrhoea suddenly ceased.

There was a marked diminution of sickness in November, although the damp and changeable atmosphere brought on diseases of the Respiratory System.

December was a healthy month. The death rate of the last quarter was 16·05.

Rainfall in 1898	...	...	13·49 inches
„ in 1897	...	...	16·41 „

The Meteorological chart shows the weekly average temperature and barometric pressure, whilst the rainfall is shown monthly.

POPULATION.

In estimating the Population many factors have been taken into consideration.

The large number of newly built inhabited houses have been noted and an allowance has been made for removals from the more congested to the outside districts, together with the usual method (*i.e.* on the hypothesis that the rate of increase since last census has been identical with that for 1881 to 1891.)

The average number of persons per house at the census was 5·6, it is now estimated at 5·3.

TABLE I.

Ward.	Census Population. 1891.	Estimated Population. 1898.
North	North-West 11,975	7,190
West		9,380
Park		7,785
South-West	6,760	9,960
Seaton	Seaton 1,323	1,344
	Longhill 840	870
South-East	7,042	7,868
Central	9,920	9,660
North-East	4,850	4,418
	42,710	58,475

TABLE II.

Ward.	Inhabited Houses.	Population, 1898	Area in Acres	Density of Population.
North ...	1,438	7,190	541	13·6 per acre
West ...	1,804	9,380	239	37·3 „
Park ...	1,537	7,785	298	26·1 „
South-West	1,811	9,960	422	23·6 „
South-East	1,402	7,868	223	35·2 „
Central ...	1,725	9,660	65	148·6 „
North-East	753	4,418	389	11·3 „
Seaton ...	411	2,214	781	2·9 „
	10,901	58,475	2,958	19·88 (Borough)

MARRIAGES.

497 Marriages were registered in 1898.

BIRTHS.

1,611 Births were registered during the year, giving a birth-rate of 27·55 against 33·37 in 1897

32·3 in 1896

34·8 in 1895

and 34·4 in 1894

1898 is therefore one of the lowest birth-rates for many years. And it will be interesting to notice whether this diminution of birth-rate continues during the next few years.

A low birth-rate is one of the signs of the times, but it must be remembered that our increase in population is due to immigration to a greater extent than to excess of birth over deaths.

DEATHS.

During the year 809 deaths were registered in the borough ; 7 of these occurred amongst persons not belonging to the town, leaving 802 deaths in the borough of persons belonging thereto : This number, with 44 in the Union Workhouse, 11 in Hartlepoons Hospital, 1 in Port Sanitary Hospital, 1 in County Asylum, and 7 others outside the Urban district makes a total of 866 deaths among persons belonging to the town. This gives a death rate of 14·8 per thousand compared with 13·91 in 1897 ; 14·5 in 1896 : 16·2 in 1895 ; 14·6 in 1894 ; 18·3 in 1893 ; 16·8 in 1892 ; and 17·17 in 1891.

DEATHS OCCURRING PER MONTH.

The following is a list of deaths occurring per month in the Borough :

		1898	1897	1896	1895
January	...	74	62	49	44
February	...	50	62	66	57
March	...	75	72	58	60
April	...	45	57	41	71
May	...	64	54	58	67
June	...	49	60	42	53
July	...	43	52	70	58
August	...	79	62	61	61
September	...	94	46	53	103
October	...	97	46	74	67
November	...	75	52	58	42
December	...	64	58	64	51
		809	683	694	734

AGES AT WHICH DEATH OCCURRED.

The following table shews the ages at which the deaths occurred :

	1898	1897	1896	1895
Under 1 year ...	290	227	213	259
From 1 to 5 years	123	125	126	123
„ 5 to 15 „	34	26	44	35
„ 15 to 25 „	39	35	42	34
„ 25 to 65 „	205	176	170	185
„ 65 and upwards	118	94	99	98
	800	683	694	734

- + 44 in Hartlepool Union Workhouse.
- + 11 in Hartlepools Hospital.
- + 1 in Port Sanitary Hospital.
- + 1 in County Asylum, Sedgfield.
- + 7 occurring elsewhere.
- 7 not belonging to the Borough.

Total ... 866

MORTALITY IN DIFFERENT WARDS.

The mortality in the different Wards was as follows :—

North	...	...	...	12·94
West	...	...	...	11·83
Park	...	...	...	11·43
South-West	...	...	...	13·65
Seaton	...	...	...	8·14
Longhill	...	...	...	29·50
South-East	...	...	...	15·60
Central	...	...	...	15·63
North-East	...	...	...	15·28

INFANTILE MORTALITY.

The deaths under one year old were 290, against 227 in 1897, 213 in 1896, and 259 in 1895, giving a death rate of 4.95 per thousand population against 4.2 in 1897, 4.1 in 1896, 5.17 in 1895, 4.3 in 1894, and 6.6 in 1893.

The death rate among children under one year old was 180.01 per thousand births as against a death rate of 129.03 in 1897, 126.18 in 1896, 148.76 in 1895, 125.9 in 1894, and 183 in 1893.

413 deaths in children under five years old have occurred in 1898 against 353 in 1897, 339 in 1896, 382 in 1895, 306 in 1894, and 469 in 1893, giving a death rate of 7.14 per thousand inhabitants, compared with 6.5 in 1897, 6.5 in 1896, 7.6 in 1895, 6.4 in 1894, and 10.1 in 1893.

The death rate among children is not so satisfactory as the previous year, nor any year since 1893.

The high mortality is very largely due, as will be seen on reference to the chart, to the epidemic of summer diarrhoea, from which cause 70 deaths were registered. Diseases of the respiratory system gave rise to 64 deaths, other scheduled diseases accounting for only 14 deaths, six of which were from injuries. Measles and Whooping Cough which accounted for 55 deaths in 1897 are represented by one and two respectively.

The question of care and feeding of infants has had serious consideration, and leaflets have been issued to all parents through the Registrar, giving hints on the bringing up of babies.

CONSIDERATION OF VARIOUS DISEASES.

The death rate from the principal zymotic diseases was 1.52 per thousand, compared with 1.84 in 1897, and 1.34 in 1896.

DEATHS FROM CHIEF ZYMOTIC DISEASES.

The following table shews the deaths from the chief Zymotic Diseases :—

		1898		1897	
		Under 5 years.	5 years and over.	Under 5 years.	5 years and over.
Smallpox	...	0	1 as against	0	0
Scarlet Fever	...	0	2 „	4	0
Typhoid Fever	...	0	4 „	1	6
Diphtheria and Membranous Croup	}	4	3 „	2	0
Measles	...	1	0 „	17	0
Whooping Cough	...	2	0 „	38	0
Diarrhoea	...	70	3 „	36	4
		77	13	„ 98	10
		90		108	

NOTIFICATION OF INFECTIOUS DISEASES.

During the year 159 cases have been notified, viz. :—

	1898	1897	1896	1895	1894
Scarlet Fever ...	96 as against	87	210	184	62
Typhoid Fever	24 „	39	42	63	40
Smallpox ...	9 „	0	2	1	12
Diphtheria and Membranous Croup }	11 „	6	14	23	40
Erysipelas ...	19 „	23	32	8	23
Puerperal Fever	0 „	0	2	1	1
Continued Fever	0 „	2	2	3	0
Total—159	„	157	304	283	178

Each of these cases has been visited and sanitary defects noted. Disinfectants and printed notices were served to each house.

CASES NOTIFIED IN EACH WARD.

The following table shews the number of infectious cases in each Ward :—

Ward.		Under 5 years.	5 years and upwards.	Total.
Central	... ..	2	16	18
North-East	... ..	0	3	3
South-East	... ..	7	27	24
South-West	... ..	2	6	8
Seaton	... ..	1	5	6
North	... ..	5	19	34
Park	... ..	5	20	25
West	... ..	9	32	41
Total		31	128	159

30 cases against 27 in 1897, 27 in 1896 and 35 in 1895, were removed to the Port Sanitary Hospital, viz. :—

Smallpox	... ..	7
Typhoid Fever	... ..	6
Scarlet Fever	... ..	17
Total		30

SMALLPOX.

Nine cases of smallpox occurred during the year. Seven cases were reported during January and February. The disease raging at Middlesbro' at the time, and spreading to surrounding districts. It was twice imported into the borough. First by a tradesman, from whom it spread to three families, with one death, and again two cases were reported in May, when an ironworker was attacked, from whom another member of his family contracted the disease in a very modified way. The usual precautions were taken. All the inmates of the infected houses were vaccinated and isolated as far as possible. All the cases but two were removed to the Infectious Diseases' Hospital. The Borough is to be congratulated on having escaped so easily from the grave and imminent danger of a serious outbreak.

VACCINATION.

The new Vaccination Act which came into force on August 12th, 1898, has up to the present has been productive of harm, whereas twelve months ago over 90 per cent. of children, six months old were vaccinated, now not 35 per cent. of children of the same age have been inoculated. As however, domiciliary vaccination which takes the place of vaccination in stations, only commenced on January 1st of the present year, it is too soon to offer an opinion on the efficacy of the new Act. 83 parents have been granted certificates under the conscience clause. I am of opinion, that we are at the beginning of a period of panic vaccination. When no cases of smallpox are about we will find many conscientious objectors, but when the disease appears in the neighbourhood, and the danger of an outbreak becomes imminent, parents will as previously, place themselves and their children under the protective influence of the small and simple operation discovered and practiced by Jenner.

The Middlesbro' epidemic, as epidemics always do, accentuated the value of vaccination as a preventive and ameliorator of smallpox.

Public vaccination is now be performed at the houses of parents with Glycerinated Calf-Lymph, supplied by the Local Government Board. As this lymph is collected, it is practically impossible to transmit any other disease by its agency. The only possible risk of vaccination is therefore the small one of getting dirt into a scratch.

SCARLET FEVER.

96 cases of scarlet fever were reported with 2 deaths, as against 87 with 4 deaths in 1897.

Both deaths were due to complications and not to the malignancy of the fever itself.

A mortality of about 2 per cent. shows that this disease has none of the dangers it had formerly, and that the cases have been of a very mild type. It may be assumed that although the cases have been numerous, the intensity of the poison is diminishing. The number of multiple cases in single houses is also fewer, showing loss of infective power.

TYPHOID FEVER.

24 cases were reported with 4 deaths against 39 cases with 7 deaths in 1897, showing a satisfactory decrease on the year. Four of the cases were imported. 15 occurred in houses with midden privies. In no case could water or milk be blamed for the infection. There is now a concensus of opinion among sanitarians that open midden privies are accountable for a great number of the hitherto unexplained typhoid cases in towns, and it has been confirmed by experiments that the infective matter of typhoid is capable of living from one year to another, in the polluted soil surrounding privy middens. The Typhoid baccillus will live in soil containing a good deal of decaying animal or vegetable matter through the winter, and will grow and multiply on the return of warm weather. It has also been found that the baccillus will not live and grow in virgin or unpolluted soil.

In delivering an address upon this subject, on October 21st, 1897, in Birmingham, Sir Richard Thorne, Principal Medical Officer to the Local Government Board, spoke as follows ;—

“It will be clear that organic and decaying refuse should be so dealt with as to prevent its contaminating the soil in the neighbourhood either of dwellings or of sources of water supply. I need hardly point out here in detail what are the points to aim at in securing this end ; but I may perhaps usefully approach the matter from the other point of view, and say that the midden-privy, which still prevails in so many of our large midland and northern towns, presents every feature that should studiously be avoided. Generally sunk below the surface of the ground, often open to rainfall, always storing up decomposing excreta and refuse in close proximity to dwellings, it provides almost every condition favourable to the production of nuisance, to the saturation of soil with filth, and to the setting up and maintenance of those very conditions which seem to be essential to the vitality and multiplication of the typhoid baccillus. The fact that with our present knowledge such a structure as the common midden-privy should not only still exist in our midst, but be clung to with a perverted tenacity, is in my opinion the greatest blot which attaches to English sanitary administration at the close of the nineteenth century. Apart from its sanitary aspect, it is a system as degrading and ignoble as it is foul, and I trust the day is not far distant when we shall look back to it as a barbarism of the past.”

In a case which came before the Quarter Sessions at Eccles in January last, Professor Delépine, the well-known Bacteriologist, showed that he had been able to find the Typhoid bacillus in the filth-saturated soil of the floor of a privy midden 13 months after the occurrence of a case of Typhoid Fever in the house to which the privy midden was attached, in spite of the fact that the midden was emptied and disinfected on the notification of the case, and a pail was used for the removal of the excreta of the patient during the period of the illness subsequent to the notification of the case.

DIARRHOEA.

Summer or epidemic diarrhoea has been more prevalent than any year since 1893.

73 deaths were registered, of which 70 were under five years of age, against 40 in 1897 and 22 in 1896.

Epidemic diarrhoea is a germ disease, and the germ lives and thrives in the polluted soils of our middens and back streets. Until the atmosphere attains a certain temperature, the germs are not virulent. When the temperature of the earth reaches a certain height, as in the later summer months, the germs become active and air-borne, and spread to foods and milk.

Given a damp, porous subsoil, polluted with organic matter, the one essential factor to the production of epidemic diarrhoea is a sustained high temperature of air and soil. According to Dr. Ballard the rise of summer diarrhoea mortality does not occur until the 4ft. earth thermometer has registered about 56° F.

Milk forms a suitable medium for the growth and development of diarrhoea germs, and through its agency the majority of the babies are poisoned, it is therefore most important that milk should be "sterilized" in summer.

Other influences such as density of population, density of buildings, want of cleanliness and character of the community, all have their effect on the mortality from this disease.

Breast-fed infants escape, and the highest death rate is among those fed with bottles and tubes. The tube of the baby's feeding bottle is a death trap of virulent type.

DIPHTHERIA AND MEMBRANOUS CROUP.

11 cases of Diphtheria have been registered with six deaths, a very high mortality. as compared with 2 in 1897 and 4 in 1896.

One case was imported and transmitted the disease to another person.

With one exception, sanitary defects were found in every house.

This excepted case occurred in a locality with a damp subsoil of clay. which is often associated with diphtheria.

Unfortunately, diphtheria is one of those diseases showing no decrease throughout the country.

MEASLES.

There is little to record about measles. Only one death was registered, against 17 in 1897 and 25 in 1896.

A slight epidemic occurred at the beginning of the year, but of mild type, as is shown by low mortality.

We must not however lose sight of the fact that measles is a dangerous epidemic disease, and cases should always be looked upon with gravity.

WHOOPING COUGH.

2 deaths were registered from whooping cough, against 38 in 1897 and 11 in 1896.

This disease which appears to be most fatal in temperate climates, and causes a mortality in this county but little less than that of measles. Nearly all the deaths take place in the winter months, and in infants under five years of age. Epidemics occur in cycles. The epidemic of 1897 had practically exhausted itself by the end of the year, leaving 1898 comparatively free.

Epidemics of measles and whooping cough often run together.

TUBERCULOSIS.

64 deaths have been registered from Phthisis during the year, and there are other tubercular conditions, the number of deaths from which cannot at present be estimated, as they are recorded under various headings.

In the course of the year, I had occasion to call the attention of the committee to the serious death rate from tuberculosis, and made certain recommendations with the intention of bringing before phthisical patients and their friends the principal facts connected with the spread of consumption, that they might take the necessary precautions against the infection.

Leaflets were printed and given to the different medical men in the town for distribution among phthisical patients and their friends.

The Registrar has notified all deaths from phthisis to the Sanitary Inspector, who has offered to disinfect every house in which a consumptive patient has died or been removed.

Almost coincident with my recommendation to the committee, a national society for the prevention and cure of tuberculosis was formed.

This society is opening branches in different parts of the country, and has the patronage of eminent men. Its objects are :—

- (1.) To educate the public as to the best means of preventing the spread of consumption from those already suffering from the disease.
- (2.) To extinguish tuberculosis in cattle.
- (3.) To promote the erection of sanatoria for the open air treatment of tubercular disease.

The first of these objects the committee are carrying out in the least objectionable way. The second will be best promoted by improving the condition of the dairies by placing milch cows under veterinary inspection, and by educating the dairy farmer in a septic or scientific dairying. A short cut to the culmination of purity in milk is by encouraging the use of sterilized milk. Milk sterilized at a temperature of 180° F does not acquire the flavour of boiled milk.

The third object is an experimental one, and my experience supports the view that tuberculosis must be stamped out by prevention rather than by cure.

Admirable results have followed the erection of sanatoria in Switzerland, Germany, Bournemouth and other places, but whether equally good results would follow this mode of treatment in the trying and variable climate of the County of Durham is a subject for experimental scientific investigation.

MILK.

The importance of a supply of pure milk to a community cannot be over estimated.

The deleterious effects of contaminated milk were painfully demonstrated by the outbreak of Typhoid Fever at the Workhouse, at the beginning of the year, when 33 inmates were attacked, with 5 deaths.

Milk is a favourable medium for the growth and multiplication of almost all disease germs. Tubercular milk is more to be feared than tubercular meat, from the English custom of drinking the former raw, whilst meat is always more or less cooked before eating. The attention of the Committee was called to the large amount of condensed milk used as food for babies, and parents were warned against using condensed *separated* milk, which is milk deprived of its cream, as an infant's food.

The dairies in the urban and rural districts have been systematically inspected.

The town dairies are clean, although the cow-sheds are often situated in thickly populated places.

The air space appears sufficient, but the light is in many cases deficient in quantity. Dairies are seldom used solely for the keeping of milk.

The country dairies are in fair order although not up to the ideal, considering the amount of milk consumed uncooked.

The best means of improving dairy farms is worthy of consideration. The offer of prizes by either the Town or County Council for the best kept dairy farm would bring the subject into prominence, and have a marked and beneficial effect on the milk supply.

From personal observation, I can reiterate the expressed views of authorities that it is safer in all cases to sterilize milk before use.

ABATTOIRS.

The carcasses of 4 beasts have been condemned for general tuberculosis as compared with 18 in the previous year. All the carcasses were so seriously diseased, that the flesh would be affected. The falling off in the number condemned would suggest that butchers could form a better opinion as to whether a living animal has disease, than they are usually given credit for.

A butcher who buys in good faith a well-fed and nourished animal, which on being slaughtered is found to be diseased and so loses the full value of the carcase, suffers a grave injustice, but there is unfortunately at present no middle course between passing and condemning the meat. The full advantage of careful inspection is derived by the public, as the butcher recognizing that any infected carcase will be seized and condemned, exercises the greatest care and forethought in selecting his animals, and making his purchases, consequently a better class of meat is brought into the town than might otherwise be the case.

If the public derives this benefit it is only reasonable that they bear part of the expense. The butchers of the town are placed at a serious disadvantage by the carcasses of animals killed outside being brought into the Borough and escaping inspection.

WATER.

Attention has been called by the Water Bill before Parliament, by my monthly report and by the Water Company themselves, to danger of using the soft or manufacturing water for drinking purposes.

I mention the subject again because it cannot too often be impressed on those who have access to it that it is impure, and not intended for consumption.

The following are the last two samples of the Company's drinking water analyzed, one taken at Seaton and the other near the Waterworks.

THE CLINICAL RESEARCH ASSOCIATION, LIMITED.

1, SOUTHWARK STREET,

LONDON BRIDGE, S.E.,

November 2nd, 1898.

LABORATORY REPORT.

To THOMAS WHEAT, ESQ.

The specimen of water marked No. 386, received here on October 28th, 1898 has been duly examined, and I have been instructed to forward the following report thereon :—

					Grains per Gallon.
Total Solid Residue (dried at 120° C.)	...	...	...	...	63·91
Combined Chlorine	...	...	...	...	8·5
Expressed as Common Salt	...	...	...	...	14·0
Nitrogen as Nitrates	...	...	...	...	0·063
Nitrites	...	...	...	...	Nil.
Saline Ammonia	...	...	...	...	0·004
Albuminoid Ammonia	...	...	...	...	0·0007
Oxygen required to oxidise the Organic Matter	...	...	...	...	Nil.
Hardness (in degrees)	...	...	...	...	40°
Lead or Copper	...	...	...	...	Nil.

Observations :—

This water is very hard and contains a considerable quantity of chlorides. As regards organic matter, it is in excellent condition. There is no evidence of any sewage contamination. The bacteriological examination bears this out entirely.

C. H. WELLS,

Secretary of the Association.

J.K.

THE CLINICAL RESEARCH ASSOCIATION, LIMITED.

1, SOUTHWARK STREET,

LONDON BRIDGE, S.E.,

19th November, 1898.

LABORATORY REPORT.

To THOMAS WHEAT, ESQ., West Hartlepool.

The specimen of water marked No. 387 received here on November 12th, 1898 has been duly examined, and I have been instructed to forward the following report thereon :—

	Grains per Gallon.
Total Solid Residue (dried at 120° C.)	... 63·00
Combined Chlorine	... 8·4
Expressed as Common Salt	... 13·8
Nitrogen as Nitrates	... 0·06
Nitrites	... Nil.
Saline Ammonia	Merest Trace.
Albuminoid Ammonia	Merest Trace.
Oxygen required to oxidise the Organic Matter	... Nil.
Hardness (in degrees)	... 40°
Lead or Copper	... Nil.

Observations :—

Except that this sample of water is hard it is of exceptionally high quality.

C. H. WELLS,

Secretary of the Association.

J.K.

COMMON LODGING HOUSES.

These are fortunately only four in number, and for men only. They have been systematically inspected and are in fair order, they however require constant visits from the Sanitary Inspector to keep them up to the required standard of cleanliness.

REFUSE DESTROYER.

No Health Report would be complete without reference to the refuse destructor, which is within measurable distance of being an accomplished fact. That West Hartlepool should be one of the first Municipalities to adopt this modern means of refuse disposal, practically demonstrates the policy of the Corporation, viz: "That they intend, in sanitary matters, above all things to be up-to-date." The completion of the destructor will mark a "mile-post" in the hygienic history of the Borough, and will have an appreciably good effect on the health of the people.

BOROUGH OF WEST HARTLEPOOL.

SANITARY INSPECTOR'S REPORT

FOR YEAR ENDED 31st DECEMBER, 1898.

TO THE CHAIRMAN AND MEMBERS OF THE
HEALTH COMMITTEE.

GENTLEMEN,

I have pleasure in submitting to you my Annual Report on the operations and work carried out in the Sanitary department for the year ended December, 1898.

The 38 notices standing over at the end of last year have all been complied with.

As in former years it will be observed that a much larger number of nuisances are reported as compared with the notices served, several nuisances being described on one form.

During the year 744 informal notices have been served for the abatement of 1,173 nuisances. Several of these not having received attention, 113 formal notices had to be served, as resolved by you, for their abatement, and in 13 cases for the purpose of enforcing compliance, legal proceedings had to be resorted to.

In four cases Magistrates' orders were granted for the carrying out of the necessary works.

48 notices stand over, the work in many cases not being completed.

ANALYSIS OF NUISANCES DEALT WITH.

No of Notices Served.	NATURE OF NUISANCES.				No. of Nuisances Registered.
38	To	Trap defective drains	...	...	100
2	,,	Disconnect sinks from sewer	...	...	5
35	,,	Other faults	...	...	80
68	,,	Cleanse dirty dwellings and workshops	...	...	73
18	,,	Repair yard pavements	...	...	39
28	,,	,, spouts and fallpipes	...	...	60
13	,,	,, dwelling-house roofs	...	...	22
12	,,	,, dilapidated dwellings...	...	...	38
2	,,	,, urinals	...	...	2
25	,,	Convert privies into water closets	...	...	60
2	,,	,, ,, pan-closets	...	...	8
20	,,	Abate overcrowding	...	...	20
6	,,	Cleanse Common Lodging Houses	...	...	6
14	,,	Repair privies	...	...	30
27	,,	,, ashpits	...	...	58
16	,,	,, water-closets	...	...	21
3	,,	Provide additional water-closets	...	...	3
27	,,	Remove accumulations of manure	...	...	36
1	,,	Cleanse pig styes	...	...	1
10	,,	,, cow sheds	...	...	18
3	,,	,, bakehouses	...	...	3
1	,,	Abate overcrowding in cow-sheds	...	...	1
7	,,	Remove animals improperly kept	...	...	7
7	,,	Abate smoke nuisances	...	...	7
105	,,	Provide dust pans	...	...	146
120	,,	,, ashpit doors	...	...	143
4	,,	Close polluted wells	...	...	9
22	,,	Clean out soft water wells	...	...	58
3	,,	,, ,, offensive cesspools	...	...	3
70	,,	Cease throwing slops into ashpits	...	...	71
29	,,	Remove accumulations of stagnant water	...	...	39
6	,,	Provide a pure water supply	...	...	6
744					1,173
113	Formal				
857					

WELLS.

Five samples of water have been taken from wells suspected of being polluted. The whole of them upon analysis were found to be polluted and unfit for drinking purposes, and together with other four disused wells were closed and filled up.

10 samples of Town's water supply have been taken during the year.

FOOD AND DRUGS.

50 samples have been taken for analysis during the year. 46 were found to be genuine and 3 adulterated, and in 1 cream extracted.

In the 2 cases of milk adulteration containing 4% and 5% of added water respectively, it was not deemed sufficient to warrant legal proceedings being taken, and it was resolved that the parties be cautioned.

In the other two cases containing 17% added water, and having 20% deficiency in natural fat respectively, legal proceedings were taken and the parties fined.

FRUIT INSPECTION.

The same attention that has been given in previous years at the Steam Navigation Warehouse, in the inspection of fruit discharged from the Hamburg boats has been continued during the past year.

The whole of the fruit discharged and examined was found in good condition, with the exception of 5 baskets of cherries which were seized and destroyed.

FACTORIES AND WORKSHOPS.

Many inspections have been made to the above premises of which there are a large number in the Borough, and notices for cleansing and lime-washing given where required. Improved and additional water-closet accommodation has been enforced where it was found that the existing conveniences were insufficient.

COMMON LODGING HOUSES.

The registered common lodging houses in the Borough, of which we have only four, have been frequently inspected, and found in good order and clean condition, generally.

BAKEHOUSES.

These premises, of which there are six in the Borough, are kept in good condition, and where it has been found necessary, notices have been served to cleanse and lime-wash.

MILK SHOPS.

Respecting the above, of which we have 62 on the register, in addition to 30 purveyors and barrows, about 20 farmers purveying their own milk, and our own 18 cow keepers in the Borough, we are pretty well supplied.

There is one thing which I felt it my duty to call your attention to and which to my mind is entirely wrong, namely, registering places for the sale of milk where such cannot on any account be kept clean.

My purpose and contention in mentioning this is, that a milk shop or dairy has to be kept scrupulously clean, the floors washed, and free from dirt. Shops registered for the sale of milk where they also have for sale on shelves, counters, and strewn on the floors all kinds of vegetables from farms and market gardens, along with their roots and no little soil, cannot possibly be kept clean.

Then again you may have so many places registered that you have little control under the Food and Drugs Act.

It is recognised that samples should be taken for analysis in the proportion of about 1 per 1,000 of the population. Out of fifty or sixty samples taken, about twenty-five are milk. You will therefore see that about 100 escape analysis. Should the vendors be unscrupulous people, they can sell to the poor a fair quantity of that which is already paid for to a collector from an undertaking I need not mention.

If this was in fewer hands there would be more satisfaction, and I believe a higher standard of milk, as the following will show:— Two samples of milk were taken the same morning from two different shops, both shops being supplied from the same farm. One was 20 per cent. deficient in cream, and the other contained 17 per cent. added water.

COW SHEDS.

These premises upon the whole are kept clean, and in fairly good order. When it has been found necessary to cleanse and lime-wash, notice has been given for that purpose. Number registered, 18.

SWINE FEVER.

(CONTAGIOUS DISEASES ANIMALS ACT.)

Three cases of suspected swine fever have been reported during the year, two of which were certified by Veterinary Inspector upon *post mortem* to be swine fever.

28 pigs were killed and the carcasses destroyed.

INFECTIOUS DISEASES.

In the early part of January, a case of small-pox was imported from Middlesbrough by a tradesman. Not knowing that he had contracted the disease, he was attending to his business in the usual manner, and having no medical advice, the case was not notified or known until his wife, child, wife's sister, and other two persons were also notified to be suffering from the disease. In February two more cases were notified from the same source.

In April and May two other persons were notified to be suffering with the disease in another locality.

Nothing could be traced as to how these two persons contracted the disease, as they had not been out of the Borough, or been with any person from any neighbouring town. The only conclusion that could be come to was, that it must have been contracted from some person attending the West Hartlepool Races, at which one of the persons was present.

All precautions were taken from the first to stamp out and prevent the spread of this disease. All the public laundries were inspected and the proprietors cautioned against washing clothes brought from Middlesbro.’

All travelling caravans were inspected and inquiries made to ascertain where they came from, or their last stopping place, in order to see if they had been in contact with any source of infection likely to cause danger.

Several people removed here from Middlesbro’, and strict watch had to be kept upon them.

The common lodging houses were frequently inspected and the keepers strictly cautioned, and it is pleasing to note that not one case arose from either the people who moved here, the caravans, or the itinerant class whose business it is to travel all their life from one town to another.

INFECTIOUS DISEASES NOTIFIED.

The following cases were notified during the year. Each house was inspected, and any defect remedied:—

Scarlet Fever	...	...	...	...	96
Typhoid Fever	...	...	...	...	24
Diphtheria	...	...	...	...	9
Smallpox	...	...	...	...	9
Erysipelas	...	...	...	...	19
Croup ...	..	...	...	...	2
					159

INFECTIOUS DISEASES NOTIFIED IN EACH MONTH.

			Scarlet Fever.	Typhoid Fever.	Small- pox.	Diph- theria.	Ery- sipelas.	Croup	TOTAL.
January	...	...	5	2	5	2	2	—	16
February	...	...	6	2	2	—	1	—	11
March	...	...	2	1	—	—	2	—	5
April	...	...	—	—	1	1	—	—	2
May ...	...	...	14	2	1	2	1	—	20
June	...	...	23	—	—	—	—	—	23
July ...	...	...	16	3	—	—	3	—	22
August	...	...	9	—	—	—	3	—	12
September	...	...	4	3	—	—	1	—	8
October	...	...	7	5	—	—	—	—	12
November	...	...	5	5	—	—	1	2	13
December	...	...	5	1	—	4	5	—	15
			96	24	9	9	19	2	159

INFECTIOUS DISEASES REMOVED TO HOSPITAL.

Scarlet Fever ...	...	...	...	...	17
Typhoid Fever	...	...	...	...	6
Small-pox ...	...	...	..	...	7
					<u>30</u>

HOUSES FUMIGATED.

Beds bedding and all other articles likely to retain infection, have been removed from 83 houses, to the corporation disinfecting chamber, and 152 rooms have been fumigated in 144 houses.

Notices and instructions have been left at each house as in previous years. Disinfectants and lime have been given free and brushes lent to the poor for the cleansing of their houses and premises.

BEDS, BEDDING, AND SUNDRIES DISINFECTED BY APPARATUS AND IN DWELLINGS.

Beds and Bedding	...	...	...	262
Bolsters and Pillows	...	...	..	354
Blankets, Counterpanes, &c.	...	...	...	495
Articles of Clothing	...	...	...	152
Sundry small Articles	...	...	...	127
Carpets and Rugs	...	...	...	83
				1473

PUBLIC ABATTOIRS.

These premises have received regular attention during the past year, and are kept in good order and condition.

The animals slaughtered at the Public Abattoirs during the past two years are as follows :—

	Beasts.	Sheep and Lambs.	Calves.	Pigs.
Year ended, December 31st, 1898 ...	4,117	11,369	600	5,629
„ „ „ „ 1897 ...	3,614	9,823	371	5,606
Increase during last year	503	1,546	229	23

Four carcasses of beef and two pigs were seized and condemned at the abattoirs, and afterwards destroyed as unfit for food, as against 18 carcasses of beef, 4 pigs and 1 sheep, in the previous year 1897.

In addition to those seized in the abattoirs, the carcasses of 3 sheep, 1 lamb, 1 pig, and 64 pieces of beef and 29 rabbits have been destroyed as shown on page 39.

INSPECTIONS AT PUBLIC ABATTOIRS, &c.

Visits made to	Abattoirs	...	...	...	254
„	Bakehouses	...	...	...	37
„	Workshops	...	...	...	86
„	Common Lodging Houses...			...	48
„	Milk Shops	...	...	...	210
„	Cow Sheds	...	...	...	80
„	Steam Navigation Warehouse			...	58
					773

SCAVENGING.

In Nos. 1 and 2 Districts the Scavenging of the Borough has been done with very few complaints.

In District No. 3 it has been otherwise, serious and numerous complaints having been made of the work not being attended to regularly, and of the Contractor causing the foul refuse to be deposited in his fields abutting on to the public highway, and in front of villa residences, which has caused your Inspectors a great deal of unnecessary work and journeys to Seaton.

Such filth and offensive matter should not be allowed to be deposited near the highway or dwelling houses to the annoyance of the inhabitants or the public, and which, after being spread in the field cannot be very well gathered together again and removed, and the section dealing with it carried out.

If it was prohibited in all cases from being deposited near dwellings inside the Borough in inhabited districts, such serious complaints would not arise.

In this district no accurate amount of the number of loads of privy and ashpit refuse removed by the contractor can possibly be given. Being a farmer, he deposits it on his farm or farms adjoining Seaton Lane.

The ashpit and privy refuse removed by the contractor in No. 1 and 2 districts during the year I shew below, and out of the 16,394 loads removed, 537 were taken away by farmers, this being a private arrangement with the contractor.

Month.	No. 1 and 2 Districts.		Total.
	Removed by Contractor.	Removed by Farmers.	
	LOADS.	LOADS.	LOADS.
January	1457	59	1516
February	1251	44	1295
March	1572	47	1619
April	1196	49	1245
May	1462	25	1487
June	1249	45	1294
July	1232	37	1269
August	1171	66	1237
September	1194	74	1268
October	1357	44	1401
November	1245	25	1270
December	1471	22	1493
	15,857	537	16,394

FOOD AND DRUGS ACT.

Articles.	No. taken.	Genuine.	Doubtful.	Adulterated.	Percentage of Adulteration.	Summonses.	Fines.	Costs.	Remarks.
Milk...	23	19	...	...	...	...	£ s d ...	£ s d ..	
„ ...	...	...	1	...	4% added water	...	...	...	Cautioned by the Committee
„ ...	...	...	1	...	5% „ „	...	...	...	„
„ ...	..	...	...	1	17% „ „	1	2 0 0	0 18 5	Third part sent to Somerset House
„ ...	...	...	...	1	20% deficient in fat	1	1 0 0	0 7 6	
Pepper	3	3	...	...		...	...	...	
Mustard	3	3	...	...		...	...	...	
Butter	6	6	...	...		...	..	...	
Lard	6	6	...	...		...	...	...	
Bread	3	3	...	...		...	...	...	
Whiskey	4	4	...	...		...	...	...	
Rum	2	2	...	...		...	...	...	
	50	46	2	2		2	3 0 0	1 5 11	

PROSECUTIONS BEFORE MAGISTRATES BY THE SANITARY AUTHORITY.

[illegible]

MEAT, &c. DESTROYED AS UNFIT FOR THE
FOOD OF MAN.

Carcases of Beef...	...	...	...	...	4
„ Sheep	...	...	...	...	3
„ Lamb	...	...	...	...	1
„ Pigs	...	...	...	...	3
					11
Pieces of Beef	...	...	...	...	64 stones
Rabbits	...	...	...	...	29 „

FRUIT.

Cherries	...	...	...	...	168 lbs.
Plums	...	...	...	...	32 „
Pears	...	...	...	...	17 „
					217

I am, Gentlemen,

Your obedient servant,

THOMAS WHEAT.

APPENDIX A.

PRECAUTIONS AGAINST TUBERCULOSIS.

A Tuberculosis is a disease affecting animals and man. It is infectious, and the infection takes place by means of tubercle bacilli, a kind of fungus which to be properly studied requires to be magnified some hundreds of times. When the infectious material effects an entry into the body, it fixes on one or another point, and gives rise to illness. Under favourable conditions the disease is limited to the part first attacked, but the bacilli can multiply in the body and spread to other parts. Amongst grown-up persons the disease has an inclination to attack the lungs, and it is well known under the name of consumption or decline ; it may develop rapidly (galloping consumption) or slowly, the latter being the commoner form. In children it very frequently attacks other parts of the body, notably the bowels.

WHENCE COME THE TUBERCLE BACILLI ?

B Most frequently they come from the expectoration of sick persons and from the milk of tuberculous cows.

1.—A single consumptive individual can, when the disease is well developed, cough up in a day millions of tubercle bacilli. When the expectoration becomes dried, the tubercle bacilli (and their infectious nature is hardly diminished by the drying) can be carried by the wind and become implanted in the nostrils, throat, or lungs of another person. But there is no danger of infection from the breath of the invalid.

2.—It is well known how common tuberculosis is in the cow, but fortunately tubercle bacilli are not to be found in the milk of every cow. Even when the disease is advanced tubercle bacilli are not to be found, or are so in very small quantities in the milk ; but when the udder is affected, which is not infrequently the case, even though the animal may otherwise appear in good health, the milk will contain tubercle bacilli in large numbers.

WHAT CAN BE DONE TO PROTECT ONESELF FROM INFECTION ?

C 1.—Every consumptive person must be careful above all to see that what he coughs up is made harmless for evil ; if he does this he need have no fear that he is spreading infection. He must not spit recklessly so that the

sputum can become dried ; he must spit into a spittoon or into something that will keep the bacilli moist. In the vessel there should be some carbolic acid (one teaspoonful to two tablespoonfuls of water), and it should be emptied daily down the closet or buried in the ground, and the vessel subsequently should be dipped into boiling water. If these precautions be taken there is no fear of the infection spreading. Patients should not spit in crowded places, churches, waiting rooms, schools, railway carriages, tramcars, &c. Sometimes it will happen, even with a conscientious individual, that the expectoration falls on the floor, or clothing, or bed clothes. One must avoid stirring up the dust in the sick room ; the daily cleaning should be done with wet sand or tea leaves, or, where the floor is waxed or painted, with a wet cloth that is afterwards placed in boiling water. In the sick room there must be as little furniture as possible. The bed clothes, wearing apparel, and mattress used by a consumptive patient must be disinfected before they are used by another person. In the open air it is not necessary to take the same precautions, as the sun and light quickly destroy the bacilli.

2.—Suspected milk can be made free from danger by boiling, or by pasteurising, that is, raising it to a temperature of 65° F, and such milk will keep some time. Mothers who are consumptive should not suckle their children.

3.—The efforts that have been made of late years to eliminate tuberculosis among cattle must have an influence on the spread of the disease to man, but it must be remembered that animals can be infected from man. No consumptive person, therefore, should be employed in the dairy or in the milking of cows.

ARE ALL PEOPLE EQUALLY LIABLE TO CONSUMPTION ?

D No ; some are more susceptible to the disease than others. It would seem that those families in which many members have died of the disease have a tendency to develop it ; and such debilitating influences as overwork, measles, whooping cough, and intemperance, etc., all seem to act as predisposing causes. Consequently, the healthier the life, and the greater the attention to the laws of health, the less likely is one to contract consumption.

CAN CONSUMPTION BE CURED ?

E In many cases it has been cured. Formerly it was believed to be incurable, but now it is recognised that when taken in time the diseased tissues in the lungs, under suitable treatment, become healed.

APPENDIX B.

CAUTION TO PARENTS.

THE DIET AND MANAGEMENT OF INFANTS.

WASHING.

During the first four months of life the child should have a warm bath each night and morning, the temperature of the water being about 90° F., and the best soap only employed. At a later period cooler water should be used (80° to 75° F.). On each occasion the whole body should be thoroughly cleansed especially in the folds of the skin, and thoroughly dried with a warm soft towel.

CLOTHING.

The child must be warmly clad in woollen or flannel garments, the neck, arms, and thighs being especially protected against exposure. Tight bandaging round the waist should be avoided. The napkins require to be examined frequently, and to be changed immediately they become damp.

SLEEP.

The child should be encouraged to sleep in a cot, care being taken that the covering is sufficiently warm and adjusted when disarranged. The infant should be taught from the earliest times to sleep at regular intervals. No soothing draughts must be employed except under strict medical supervision.

EXERCISE.

When the weather is fine the child should be taken out into the fresh air at least twice every day, care being taken to protect the body from the cold and the head from the rays of the sun.

The bedroom must be large, light, and well ventilated, but draughts must be carefully guarded against.

SUCKLING.

If the mother is in good health and has sufficient milk, the infant should receive no other food until seven months old. For the first two months the breast should be given at regular intervals of two hours ; between the second and fourth month every two hours and a half ; and from the fourth to the seventh month every three hours. The infant should be taught to abstain from food between the hours of 11 p.m. and 5 a.m., in order to ensure six hours' sleep both to itself and to its mother. After each meal the nipple and breast must be carefully washed and dried, and any indication of soreness or abrasion should receive immediate attention. If the mother has not sufficient milk to nourish the child, or is unable to feed it at regular intervals, the breast must be supplemented by COWS' MILK properly diluted.

WEANING.

This should always be performed gradually, and if possible during the cool months of the year. COWS' MILK, sterilised and diluted with barley water, and occasionally thickened with some form of malted food, is the most convenient diet after the cessation of nursing,

ARTIFICIAL FEEDING OF INFANTS.

GENERAL RULES.

1. For the first six months of life the food should consist entirely of milk. After that period some form of farinaceous food may be required.
2. COWS' MILK, being cheap and easily obtained, is most suitable in ordinary cases. Under certain conditions, however, ass's or goats' milk may be preferred.
3. Young infants are unable to digest pure cows' milk, owing to its extreme richness and its tendency to produce large masses of curd in the stomach. In all cases, therefore, the fresh milk must be suitably diluted with barley or rice water.
4. The milk should be given every two hours during the first two months, and subsequently every two and a half or three hours, except between the hours of 11 p.m. and 5 a.m., when the child should be encouraged to sleep.

5. As soon as the bottle has been emptied it should be removed and the child's mouth carefully wiped with a piece of soft rag soaked in warm water. The child should never be permitted to sleep with the teat in its mouth.

THE MILK:—A fresh supply of milk should be procured twice a day, but only in quantities requisite for immediate use. The slightest degree of acidity, as evidenced by the red coloration of a piece of blue litmus paper, renders the milk unfit for use. Immediately the milk is received it should either be well boiled or sterilised, and afterwards kept in a cool place.

STERILISATION: This is most conveniently effected by filling three or four feeding bottles with the quantity of diluted milk appropriate for each meal, and firmly plugging their mouths with cotton-wool. The bottles are then placed upright in a small saucepan containing water, and the whole placed upon the fire and boiled for forty minutes. When required for use the bottles are immersed in hot water in order to warm their contents to the temperature of the body, the cotton-wool withdrawn, and a clean india-rubber teat fixed over the mouth.

CONDENSED SEPARATED MILK: This contains only one-tenth the amount of fat (cream) of cows' milk, and is therefore *quite unsuitable as a food for infants*. Ten half-pound tins require to be purchased to obtain the same amount of fat as in *one pint* of good new milk.

THE FEEDING APPARATUS; This must be as simple as possible and capable of being easily and thoroughly cleaned. All that is necessary is an oval bottle of sufficient capacity and provided with a soft india-rubber teat which can be drawn over the neck. It is wise to keep at least four of these bottles in constant use. Immediately after a meal the teat is disconnected, turned inside out, and well scrubbed with a clean tooth brush. It is then placed in a solution of boracic acid, care being taken to rinse it well in cold water before its next term of duty. The bottle itself is well cleaned, and if necessary boiled in a weak (one per cent.) solution of soda, and kept filled with some mild antiseptic until again required.

SCHEME OF DIET.

FOR THE FIRST WEEK OF LIFE.

Cows' Milk, $\frac{1}{2}$ oz. ; thin barley water, $\frac{1}{2}$ oz. ; milk sugar, 15 grs ; *or* Whey, 3 fl. drams ; cream, 2 fl. drams ; milk sugar, 10 grs. ; hot water, 3 fl. drams.]

Every two hours,

FROM THE SECOND TO THE FOURTH WEEK.

Cows' milk 1 oz.; barley water, 1 cz.; cream, 2 fl. drams; milk sugar, 30 grs.; *or*

Cows' milk, 1 cz.; cream, 2 fl. drams; milk sugar, 15 grs.; water, 1 oz.
Every two hours.

FROM THE FOURTH TO THE EIGHTH WEEK.

Cows' milk, 9 fl. drams; barley water, 6 fl. drams; cream, 2 fl. drams; milk sugar, 30 grs.; water, 4 fl. drams; *or*

Cows' milk 1 oz.; cream, 4 fl. drams; sugar of milk, 30 grs.; water, 10 fl. drams.

Every two hours.

FROM THE THIRD TO THE SIXTH MONTH.

Cows' milk, 20 fl. drams; barley water, 6 fl. drams; milk sugar, 60 grs.; cream, 5 fl. drams; water, 10 fl. drams; *or*

Cows' milk, 20 fl. drams; cream, 4 fl. drams; milk sugar, 60 grs.; water, 8 fl. drams.

Every three hours.

FROM THE SEVENTH TO THE TENTH MONTH.

(Five Meals a day).

First Meal (7 a.m.)—Cows' milk $6\frac{1}{2}$ oz.; cream, $\frac{1}{2}$ oz.; milk sugar, 60 grs.; water, 1 oz.

Second Meal (10-30 a.m.)—Add to the foregoing one tablespoonful of malted food.

Third Meal (2 p.m.)—Same as second.

Fourth Meal (6 p.m.)—Ditto.

Fifth Meal (10 p.m.)—Same as first.

FROM TENTH TO TWELFTH MONTH.

Five meals a day, with addition of the yoke of an egg, stale bread crumbs, oatmeal, or wholemeal flour occasionally.

APPENDIX C.

NOTICE.

BOROUGH OF WEST HARTLEPOOL.

INFECTIOUS DISEASES.

INSTRUCTION FOR PREVENTING THE SPREAD OF SCARLET
FEVER, TYPHOID FEVER, SMALLPOX, AND OTHER
INFECTIOUS DISEASES.

To Mr. of

.....

It having been reported to the West Hartlepool Corporation that a case of.....has occurred on the premises occupied by you, at the above address.

1. Separate the sick person from the rest of the family, and remove curtain and other unnecessary woollen or linen articles, and send information to the Medical Officer of Health.

2. Admit fresh air by opening the upper window sash. Keep the fire place and chimneys open, using a fire when possible. Allow air to pass freely through the house by means of open windows and doors.

3. Hang up a sheet outside the door of the sick room, and keep it wet with a quarter pint of carbolic acid (No. 4), or a pound of chloride of lime mixed in a gallon of water.

4. Receive all discharges from the patient into a solution of carbolic acid. Add carbolic acid plentifully to the discharges before emptying them into the closet.

5. Pour daily into every sink, closet, or privy a quantity of the above-named disinfectant.

6. All cups, glasses, spoons, &c., used by the patient should be first washed in a solution of carbolic acid or sanitas, and afterwards in boiling water,

7. No articles of food should be allowed to remain in the room.
8. All bed and body linen used by the sick person should be at once steeped, for a few hours, in any of the above-mentioned solutions, and afterwards BOILED in water.
9. Instead of handkerchiefs, small pieces of rag should be used, and these should be burnt when soiled.
10. Persons attending on the sick should have garments made of cotton or other washable material. Woolen dresses should not be worn. The attendants should wash their hands after waiting upon the sick person, using carbolic soap.
11. The sick room must on no account be visited by others than those in immediate attendance on the sick, as visitors are very liable to carry away infection.
12. When recovering, and while the body of the patient is peeling, camphorated or carbolised oil should be rubbed over the sick person every day. The sick person must not be allowed to mix with the rest of the family until the peeling has entirely ceased.
13. When the sickness has terminated, the sick room should be cleansed and information sent to the Health Office, when an inspector will attend and thoroughly fumigate the place, and disinfect all clothing that has been in use in the sick room. Afterwards the room should be freely ventilated, and the ceiling lime-washed, the paper stripped from the walls, and burned ; if the walls have been previously lime-washed, the lime-washing should be repeated ; and the furniture and all the wood-work washed with soap and water, containing a little chloride of lime. All bedding and articles that can not be washed should be disinfected at the Corporation Disinfectant Chamber. Until this process of disinfection is properly carried out, the room cannot be safely occupied.
14. Children must on no account be allowed to attend school from a house in which there is infectious disease.

15. In case of death, the body should not be removed from the room, except for burial, unless taken to a mortuary, nor should any article be taken from it until disinfected, as directed in rule 13. The body should be quickly put into a coffin, with 2lbs. of carbolic acid powder. The coffin should be fastened down and the body buried without delay.

N.B.—Carbolic Acid and other disinfectants may be bought of any Druggist, or may be had gratis at the Office of the Sanitary Inspector, Municipal Buildings, by those who cannot afford to buy them.

PENALTIES.

Attention is particularly directed to the following Provisions of the Public Health Act in reference to “Infectious Diseases.”

1. The owner or occupier may be required to cleanse and disinfect any house or room, and the articles in it likely to retain infection—where infectious diseases have existed—under a penalty not exceeding 10/- a day for neglect.

2. If any person suffering from any dangerous infectious disorder shall enter a cab or other public conveyance, without informing the driver thereof that he is so suffering, shall be liable to a penalty not exceeding £5.

3.—Any person suffering from any dangerous infectious disorder—such as fever, scarlet fever, smallpox, &c.—who exposes himself in any street, school, church, chapel, theatre, or other public place, or in any omnibus or other public conveyance, and any person in charge of one so suffering, who so exposes the sufferer, shall be liable to a penalty not exceeding £5.

4. Any person who, without previous disinfection, gives, lends, sells, moves to another place, or exposes any bedding, clothing, rags, or other things which have been exposed to infection, becomes liable to a penalty not exceeding £5.

5. Any person who lets a house, room, or part of a house, in which there has been infectious disease, without having such house or room, and all articles therein liable to infection, disinfected, is liable to a penalty not exceeding £20.

6. If any person who lets or shows for hire any house or part of a house, makes any FALSE STATEMENT as to the fact of there being in such house, or having within six weeks previously been therein, any person suffering from an infectious disease, such person ANSWERING FALSELY shall be liable to imprisonment, with or without hard labour, or to a penalty not exceeding £20.

S. GOURLEY,

Medical Officer of Health.

THOS. WHEAT,

Sanitary Officer,

Municipal Buildings, West Hartlepool.

February, 1899.

APPENDIX D.

NOTICE.

BOROUGH OF WEST HARTLEPOOL.

HEALTH DEPARTMENT,

MUNICIPAL BUILDINGS.

I have to inform you that the following Scholars attending the
 School,
 viz. :
suffering from fever.

You are respectfully requested by the Health Committee to exclude
and all the other children living at the above address, from
 your school for six weeks, or until a medical certificate has been given to
 you stating that the house is free from infectious disease.

APPENDIX E.

NOTICE.

BOROUGH OF WEST HARTLEPOOL.

ON THE TERMINATION OF THE CASE OF SICKNESS the Occupier or other person in charge of the premises is requested to obtain the Signature of the Medical Attendant to the following certificate, and forward it to the Sanitary Officer, when the disinfecter will attend without delay.

To the Sanitary Inspector, West Hartlepool.

DEAR SIR,

I hereby Certify that the Premises, Bedding, &c., of.....
at No.....are now ready for final Disinfection
after.....

(Signature of
the Medical }
Attendant). }

Dated this.....day of.....18.....

APPENDIX F.

TABLE OF DEATHS during the year 1898, in the West Hartlepool Urban District, classified according to DISEASES, AGES, and LOCALITIES.

NAMES OF LOCALITIES adopted for the purpose of these Statistics; public institutions being shown as separate localities. (Columns for Population and Births are in Table B). (a)				MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.																						
				At all ages. (b)	Under 1 year. (c)	1 and under 5 (d)	5 and under 15 (e)	15 and under 25 (f)	25 and under 65 (g)	65 and up-wards (h)	(i)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
												Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	FEVERS.					Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhoea and Dysentry.	Rheumatic Fever.	Phthisis.	Bronchitis Pneumonia, & Pleurisy.	Heart Disease.	Influenza.	Injuries.	All other Diseases.	TOTAL.
																Typhus.	Enteric or Typhoid.	Con-tinued.	Relaps-ing.	Puer-peral.													
NORTH WARD	...	...	...	93	29	18	4	5	27	10	Under 5	...	...	...	...	...	...	...	...	...	...	1	9	...	...	5	...	...	...	31	46		
											5 upwds	...	1	...	1	...	...	...	...	...	...	...	...	9	9	6	1	1	19	47			
											Under 5	...	...	...	...	...	...	...	...	...	...	12	...	...	7	...	...	...	35	54			
WEST WARD	...	...	...	111	46	9	4	7	25	20	5 upwds	...	...	...	...	...	2	...	...	...	...	...	...	8	8	10	2	4	23	57			
											Under 5	...	...	2	...	...	...	...	...	...	...	3	...	...	4	...	...	...	26	35			
PARK WARD	...	...	...	89	25	11	4	4	28	17	5 upwds	...	...	1	...	...	...	...	...	...	...	...	...	5	10	7	2	1	28	54			
											Under 5	...	...	...	...	...	...	...	...	...	...	14	...	...	14	1	...	3	44	76			
SOUTH-WEST WARD	...	...	...	136	54	22	7	6	35	12	5 upwds	...	...	...	...	...	...	...	...	...	...	...	...	8	8	11	...	3	30	60			
											Under 5	...	...	1	...	...	...	...	...	...	...	16	...	...	12	...	...	1	44	74			
SOUTH-EAST WARD	...	...	...	123	48	24	7	4	28	12	5 upwds	...	...	2	...	...	1	...	...	...	...	1	...	12	8	8	...	...	17	49			
											Under 5	...	...	...	...	...	...	...	...	...	...	1	14	...	1	14	...	...	2	51	83		
CENTRAL WARD	...	...	...	151	60	23	4	9	33	22	5 upwds	...	1	...	...	...	...	...	...	...	...	...	...	14	11	8	3	3	28	68			
											Under 5	...	...	...	...	...	...	...	...	...	...	1	...	...	3	...	...	...	21	25			
NORTH-EAST WARD	...	...	...	66	19	7	4	3	17	16	5 upwds	...	...	...	...	...	1	...	...	...	...	1	...	6	1	6	1	4	21	41			
											Under 5	...	...	...	...	...	...	...	...	...	...	1	...	1	...	5	...	...	...	11	18		
SEATON WARD	...	...	...	40	9	9	...	1	12	9	5 upwds	...	...	...	...	...	...	...	...	...	...	1	...	1	5	6	...	2	7	22			
											Under 5	...	...	3	...	...	...	...	...	...	...	1	2	70	...	1	64	1	...	6	263	411	
TOTALS	...	...	...	809	290	123	34	39	205	118	5 upwds	...	2	3	1	...	4	...	...	...	...	...	3	...	63	60	62	9	18	173	398		

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

Deaths occurring outside the district among persons belonging thereto.	64	3	4	5	5	31	16	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	4	5	
								5 upwds	1	...	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deaths occurring within the district among persons not belonging thereto.	7	2	...	...	...	4	1	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	2
								5 upwds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX G.

TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1898, in the West Hartlepool Urban District; classified according to DISEASES, AGES and LOCALITIES.

NAMES OF LOCALITIES adopted for the purpose of these Statistics: Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICKNESS IN EACH LOCALITY, COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH.													NUMBER OF SUCH CASES REMOVED FROM THEIR HOMES IN THE SEVERAL LOCALITIES FOR TREATMENT IN ISOLATION HOSPITAL.														
	Last Census.	Estimated to middle of 1898.			1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	4	5	6	7	8	9	10	11	12	13		
					Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	FEVERS.						Cholera.	Erysipelas.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	FEVERS.						Cholera.	Erysipelas.		
									Typhus.	Enteric or Typhoid.	Con- tinued.	Relaps- ing.	Puer- peral.	Typhus.									Enteric or Typhoid.	Con- tinued.	Relaps- ing.	Puer- peral.						
(a)	(b)	(c)	(d)	(e)	Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.	Enteric or Typhoid.	Con- tinued.	Relaps- ing.	Puer- peral.	Cholera.	Erysipelas.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Group.	Typhus.	Enteric or Typhoid.	Con- tinued.	Relaps- ing.	Puer- peral.	Cholera.	Erysipelas.				
NORTH WARD	* ...	7,190	...	Under 5	...	4	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	4	10	...	...	2	...	...	...	...	3	...	...	2	4	...	...	...	1	...	...	...	...	...	...	...	...	...	
WEST WARD	* ...	9,380	...	Under 5	...	6	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	2	24	...	...	4	...	...	...	...	2	...	...	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	
PARK WARD	* ...	7,785	...	Under 5	...	4	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	1	12	2	...	...	3	...	...	...	2	...	...	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	
SOUTH-WEST WARD	6,760	9,960	...	Under 5	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	...	3	...	...	1	...	...	...	...	2	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	
SOUTH-EAST WARD	7,042	7,868	...	Under 5	...	6	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	2	15	3	...	...	5	...	...	...	...	2	...	...	2	6	...	...	...	2	...	...	...	...	...	...	...	...	
CENTRAL WARD	9,920	9,660	...	Under 5	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	...	6	...	...	...	5	...	...	...	...	5	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	
NORTH-EAST WARD	4,850	4,318	...	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	...	...	...	...	2	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
SEATON WARD	2,163	2,310	...	Under 5	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	...	1	...	...	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
* OLD NORTH-WEST WARD	11,975	...	...	Under 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS	42,710	58,471	1,611	Under 5	...	25	4	2	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...		
				5 upwds	9	71	5	...	...	24	...	...	...	...	19	...	...	7	16	...	...	...	6	...	...	...	...	...	...	...	...	

